

10/009100

JC07 Rec'd PCT/PTO 03 DEC 2001

Practitioner's Docket No. U 013752-2

Optional Customer No. Bar Code



00140

PATENT TRADEMARK OFFICE

CHAPTER II

TRANSMITTAL LETTER
TO THE UNITED STATES ELECTED OFFICE (EO/US)

(ENTRY INTO U.S. NATIONAL PHASE UNDER CHAPTER II)

PCT/NO00/00198

7 JUNE 2000

7 JUNE 1999

INTERNATIONAL APPLICATION NO.

INTERNATIONAL FILING DATE

PRIORITY DATE CLAIMED

DEVICE FOR POSITIONING AND LIFTING A MARINE STRUCTURE, PARTICULARLY A
PLATFORM DECK

TITLE OF INVENTION

1.John SCHIA; 2.Tor Ole OLSEN; 3.Kolbjorn HOYLAND; 4.Kare O. HAEREID;
5.Jorn Bastholm HANSEN; 6.Trond LANDBO

APPLICANT(S)

Box PCT
Assistant Commissioner for Patents
Washington D.C. 20231
ATTENTION: EO/US

NOTE: *The completion of those filing requirements that can be made at a time later than 30 months from the priority date results from the Commissioner exercising his judgment under 35 USC 371(d). The filing*

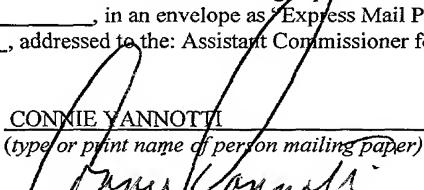
CERTIFICATION UNDER 37 C.F.R. 1.10*

(Express Mail label number is mandatory.)

(Express Mail certification is optional.)

I hereby certify that this correspondence and the documents referred to as attached therein are being deposited with the United States Postal Service on this date DECEMBER 3, 2001, in an envelope as "Express Mail Post Office to Addressee," Mailing Label Number EV011019467US, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

CONNIE YANNOTTI
(type or print name of person mailing paper)


Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

***WARNING:** Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

10/009100
JC10 Rec'd PCT/PTO 03 DEC 2001

receipt will show the actual date of receipt of the last item completing the entry into the national phase. See 37 C.F.R. §1.491 which states: "An international application enters the national state when the applicant has filed the documents and fees required by 35 USC 371(c) within the periods set forth in § 1.494 and § 1.495."

WARNING: Where the items are those which can be submitted to complete the entry of the international application into the national phase are subsequent to 30 months from the priority date the application is still considered to be in the international state and if mailing procedures are utilized to obtain a date the express mail procedure of 37 C.F.R. §1.10 must be used (since international application papers are not covered by an ordinary certificate of mailing - See 37 C.F.R. §1.8).

NOTE: Documents and fees must be clearly identified as a submission to enter the national state under 35 USC 371 otherwise the submission will be considered as being made under 35 USC 111. 37 C.F.R. § 1.494(f).

1. Applicant herewith submits to the United States Elected Office (EO/US) the following items under 35 U.S.C. 371:
 - a. [X] This express request to immediately begin national examination procedures (35 U.S.C. 371(f)).
 - b. [X] The U.S. National Fee (35 U.S.C. 371(c)(1)) and other fees (37 C.F.R. § 1.492) as indicated below:

SEARCHED - INDEXED - SERIALIZED - FILED

10/009100

JC10 Rec'd PCT/PTC 03 DEC 2001

2.Fees

CLAIMS FEE	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
[]*	TOTAL CLAIMS	9- 20 =		x \$ 18.00 =	\$
	INDEPENDENT CLAIMS	1- 3 =		x \$ 84.00 =	
MULTIPLE DEPENDENT CLAIM(S) (if applicable) + \$280.00					
BASIC FEE**	<p>[] U.S. PTO WAS INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where an International preliminary examination fee as set forth in § 1.482 has been paid on the international application to the U.S. PTO:</p> <p>[] and the international preliminary examination report states that the criteria of novelty, inventive step (non-obviousness) and industrial activity, as defined in PCT Article 33(2) to (4) have been satisfied for all the claims presented in the application entering the national stage (37 CFR 1.492(a)(4)) \$100.00</p> <p>[] and the above requirements are not met (37 CFR 1.492(a)(1)) \$710.00</p> <p>[X] U.S. PTO WAS NOT INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where no international preliminary examination fee as set forth in § 1.482 has been paid to the U.S. PTO, and payment of an international search fee as set forth in § 1.445(a)(2) to the U.S. PTO:</p> <p>[] has been paid (37 CFR 1.492(a)(2)) \$740.00</p> <p>[X] has not been paid (37 CFR 1.492(a)(3)) \$1,040.00</p> <p>[] where a search report on the international application has been prepared by the European Patent Office or the Japanese Patent Office (37 CFR 1.492(a)(5)) \$890.00</p>				
	Total of above Calculations				
SMALL ENTITY	Reduction by ½ for filing by small entity, if applicable. Statement may also be filed. (note 37 CFR 1.9, 1.27, 1.28)				
	Subtotal				
	Total National Fee				
	Fee for recording the enclosed assignment document \$40.00 (37 CFR 1.21(h)). (See Item 13 below). See attached "ASSIGNMENT COVER SHEET".				
TOTAL	Total Fees enclosed				

*See attached Preliminary Amendment Reducing the Number of Claims.

- i. A check in the amount of \$520.00 to cover the above fees is enclosed.
- ii. Please charge Account No. _____ in the amount of \$ _____.
A duplicate copy of this sheet is enclosed.

****WARNING:** *"To avoid abandonment of the application the applicant shall furnish to the United States Patent and Trademark Office not later than the expiration of 30 months from the priority date: * * * (2) the basic national fee (see § 1.492(a)). The 30-month time limit may not be extended." 37 C.F.R. § 1.495(b).*

WARNING. *If the translation of the international application and/or the oath or declaration have not been submitted by the applicant within thirty (30) months from the priority date, such requirements may be met within a time period set by the Office. 37 C.F.R. § 1.495(b)(2). The payment of the surcharge set forth in § 1.492(e) is required as a condition for accepting the oath or declaration later than thirty (30) months after the priority date. The payment of the processing fee set forth in § 1.492(f) is required for acceptance of an English translation later than thirty (30) months after the priority date. Failure to comply with these requirements will result in abandonment of the application. The provisions of § 1.136 apply to the period which is set. Notice of Jan. 3, 1993, 1147 O.G. 29 to 40.*

3. A copy of the International application as filed (35 U.S.C. 371(c)(2)):

NOTE: *Section 1.495 (b) was amended to require that the basic national fee and a copy of the international application must be filed with the Office by 30 months from the priority date to avoid abandonment "The International Bureau normally provides the copy of the international application to the Office in accordance with PCT Article 20. At the same time, the International Bureau notifies applicant of the communication to the Office. In accordance with PCT Rule 47.1, that notice shall be accepted by all designated offices as conclusive evidence that the communication has duly taken place. Thus, if the applicant desires to enter the national stage, the applicant normally need only check to be sure the notice from the International Bureau has been received and then pay the basic national fee by 30 months from the priority date." Notice of Jan. 7, 1993, 1147 O.G. 29 to 40, at 35-36. See item 14c below.*

- a. is transmitted herewith.
 - b. is not required, as the application was filed with the United States Receiving Office.
 - c. has been transmitted
 - i. by the International Bureau.
Date of mailing of the application (from form PCT/IB/308): 14 DECEMBER 2000.
 - ii. by applicant on _____.
Date _____.
4. A translation of the International application into the English language (35 U.S.C. 371(c)(2)):
- a. is transmitted herewith.
 - b. is not required as the application was filed in English.
 - c. was previously transmitted by applicant on _____.
Date _____.
 - d. will follow.

5. [X] Amendments to the claims of the International application under PCT Article 19 (35 U.S.C. 371(c)(3)):

NOTE: *The Notice of January 7, 1993 points out that 37 C.F.R. § 1.495(a) was amended to clarify the existing and continuing practice that PCT Article 19 amendments must be submitted by 30 months from the priority date and this deadline may not be extended. The Notice further advises that: "The failure to do so will not result in loss of the subject matter of the PCT Article 19 amendments. Applicant may submit that subject matter in a preliminary amendment filed under section 1.121. In many cases, filing an amendment under section 1.121 is preferable since grammatical or idiomatic errors may be corrected" 1147 O.G. 29-40, at 36.*

- a. [] are transmitted herewith.
 - b. [] have been transmitted
 - i. [] by the International Bureau.
Date of mailing of the amendment (from form PCT/IB/308): _____.
 - ii. [] by applicant on _____.
Date _____
 - c. [X] have not been transmitted as
 - i. [X] applicant chose not to make amendments under PCT Article 19.
Date of mailing of Search Report (from form PCT/ISA/210): 18 OCTOBER 2000.
 - ii. [] the time limit for the submission of amendments has not yet expired.
The amendments or a statement that amendments have not been made will be transmitted before the expiration of the time limit under PCT Rule 46.1.
6. [X] A translation of the amendments to the claims under PCT Article 19 (38 U.S.C. 371(c)(3)):
 - a. [] is transmitted herewith.
 - b. [X] is not required as the amendments were made in the English language.
 - c. [] has not been transmitted for reasons indicated at point 5(c) above.
7. [X] A copy of the international examination report (PCT/IPEA/409)
 - [X] is transmitted herewith.
 - [] is not required as the application was filed with the United States Receiving Office.
8. [X] Annex(es) to the international preliminary examination report
 - a. [X] is/are transmitted herewith.
 - b. [] is/are not required as the application was filed with the United States Receiving Office.
9. [X] A translation of the annexes to the international preliminary examination report
 - a. [] is transmitted herewith.
 - b. [X] is not required as the annexes are in the English language.

REC'D REC'D FWD/TC 03 DEC 2001

10. An oath or declaration of the inventor (35 U.S.C. 371(c)(4)) complying with 35 U.S.C. 115
- a. was previously submitted by applicant on _____ Date
 - b. is submitted herewith, and such oath or declaration
 - i. is attached to the application.
 - ii. identifies the application and any amendments under PCT Article 19 that were transmitted as stated in points 3(b) or 3(c) and 5(b); and states that they were reviewed by the inventor as required by 37 C.F.R. 1.70.
 - c. will follow.

Other document(s) or information included:

11. An International Search Report (PCT/ISA/210) or Declaration under PCT Article 17(2)(a):
- a. is transmitted herewith.
 - b. has been transmitted by the International Bureau.
Date of mailing (from form PCT/IB/308): _____.
 - c. is not required, as the application was searched by the United States International Searching Authority.
 - d. will be transmitted promptly upon request.
 - e. has been submitted by applicant on _____ Date
12. An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98:
- a. is transmitted herewith.
Also transmitted herewith is/are:
 Form PTO-1449 (PTO/SB/08A and 08B).
 Copies of citations listed.
 - b. will be transmitted within THREE MONTHS of the date of submission of requirements under 35 U.S.C. 371(c).
 - c. was previously submitted by applicant on _____ Date
13. An assignment document is transmitted herewith for recording.

A separate "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or FORM PTO 1595 is also attached.

10/009100

SEARCHED

05 DEC 2001

14. Additional documents:
- a. Copy of request (PCT/RO/101)
 - b. International Publication No. WO 00/75010
 - i. Specification, claims and drawing
 - ii. Front page only
 - c. Preliminary amendment (37 C.F.R. § 1.121)
 - d. Other
-
-
-

15. The above checked items are being transmitted
- a. before 30 months from any claimed priority date.
 - b. after 30 months.

16. Certain requirements under 35 U.S.C. 371 were previously submitted by the applicant on _____, namely:
-
-
-

AUTHORIZATION TO CHARGE ADDITIONAL FEES

WARNING: *Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges if extra claims are authorized.*

NOTE: *"A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).*

NOTE: *"Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).*

The Commissioner is hereby authorized to charge the following additional fees that may be required by this paper and during the entire pendency of this application to Account No. 12-0425.

37 C.F.R. 1.492(a)(1), (2), (3), and (4) (filing fees)

WARNING: *Because failure to pay the national fee within 30 months without extension (37 C.F.R. § 1.495(b)(2)) results in abandonment of the application, it would be best to always check the above box.*

37 C.F.R. 1.492(b), (c) and (d) (presentation of extra claims)

NOTE: *Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must*

10/009100

JCTO Recd PTO/PTO 03 DEC 2001

only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. § 1.492(d)), it might be best not to authorize the PTO to charge additional claim fees, except possible when dealing with amendments after final action.

- 37 C.F.R. 1.17 (application processing fees)
- 37 C.F.R. 1.17(a)(1)-(5)(extension fees pursuant to § 1.136(a)).
- 37 C.F.R. 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. § 1.311(b).

NOTE: 37 C.F.R. 1.28(b) requires "Notification of any change in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying . . . issue fee." From the wording of 37 C.F.R. § 1.28(b): (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

- 37 C.F.R. § 1.492(e) and (f) (surcharge fees for filing the declaration and/or filing an English translation of an International Application later than 30 months after the priority date).



SIGNATURE OF PRACTITIONER

Reg. No.: 25,858

William R. Evans

(type or print name of practitioner)

Tel. No.: (212) 708-1930

P.O. Address

Customer No.: 00140

c/o Ladas & Parry
26 West 61st Street
New York, N.Y. 10023

10/009100

JC10 Rec'd PCT/PTC 03 DEC 2001

Practitioner's Docket No. U 013752-2

CHAPTER I

IN THE UNITED STATES ELECTED OFFICE (EO/US)

PCT/NO00/00198	7 JUNE 2000	7 JUNE 1999
INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
DEVICE FOR POSITIONING AND LIFTING A MARINE STRUCTURE, PARTICULARLY A PLATFORM DECK		
TITLE OF INVENTION		
1.John SCHIA; 2.Tor Ole OLSEN; 3.Kolbjorn HOYLAND; 4.Kare O. HAEREID; 5.Jorn Bastholm HANSEN; 6.Trond LANDBO		
APPLICANT(S)		

Box PCT
Assistant Commissioner for Patents
Washington, D.C. 20231
ATTENTION: EO/US

PRELIMINARY AMENDMENT

Please amend the above identified application as follows:

IN THE CLAIMS :

Please amend claims 6, 7, 8, and 9 as follows:

6. (Amended) A device according to claim 1, characterised in that the near-
vertical part (16) is a truss structure.

CERTIFICATE UNDER 37 1.10

I hereby certify that this paper is being deposited with the United States Postal Service on this date DECEMBER 3, 2001 in an envelope as "EXPRESS MAIL POST OFFICE TO ADDRESSEE" Mailing Label Number EV011019467US addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231

CONNIE YANNOTTI
(Type or print name of person mailing paper)

Connie Yannotti
(Signature of person mailing paper)

NOTE: Each paper or fee referred to as enclosed herein has the number of the "EXPRESS MAIL" mailing label place thereon prior to mailing 37 CFR 1.16(b).

7. (Amended) A device according to claim 1, characterised in that the near-horizontal part (18) is a truss structure.

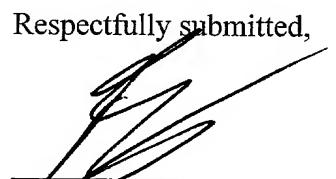
8. (Amended) A device according to claim 1, characterised in that the adjustable connection of the near-horizontal part (18) of the lifting vessel (1) is in the form of a hydraulically operated bolt (9) inserted into a corresponding hole (8) in a guiding rail (7) on the lifting vessel (1).

9. (Amended) A device according to claim 1, characterised in that the near-vertical part (16) in an area above the hinge point (21) is equipped with adjustable hydraulic arms (20) connected to the lifting vessel (1).

Remarks

The above amendatory action is taken solely for the purpose of avoiding claim fees that would otherwise accrue due to the presence of multiple dependent claims.

Respectfully submitted,



WILLIAM R. EVANS
LADAS & PARRY
26 WEST 61ST STREET
NEW YORK, NEW YORK 10023
REG.NO.25,858 (212)708-1930

MARKED UP COPY

6. (Amended) A device according to [any of the preceding claims] claim 1, characterised in that the near-vertical part (16) is a truss structure.
7. (Amended) A device according to [any of the preceding claims] claim 1, characterised in that the near-horizontal part (18) is a truss structure.
8. (Amended) A device according to [any of the preceding claims] claim 1, characterised in that the adjustable connection of the near-horizontal part (18) of the lifting vessel (1) is in the form of a hydraulically operated bolt (9) inserted into a corresponding hole (8) in a guiding rail (7) on the lifting vessel (1).
9. (Amended) A device according to [any of the preceding claims] claim 1, characterised in that the near-vertical part (16) in an area above the hinge point (21) is equipped with adjustable hydraulic arms (20) connected to the lifting vessel (1).

09-07-2001

Rec'd PCT/PTO 03 DEC 2001

10/009100

SAO/lh/102779

PCT/NO00/00198

Device for positioning and lifting a marine structure, particularly a platform deck.

The present invention is related to a device for positioning and lifting a marine structure, particularly a platform deck, with the use of a lifting vessel.

In connection with offshore activities such as gas and oil exploitation it is usual to install platforms on the field. These platforms often consist of large and heavy platform substructures fixed to the seabed. Such a platform substructure is normally a so-called "jacket", which is a steel truss structure. On top of for example a jacket it is usual to place a platform deck, which is used in connection with drilling and production. The deck also often includes living quarters.

To transport and install the jacket and the platform deck described above, for example barges have been used to transport the jacket and platform deck out to the field, and large crane vessels have been used to install the platform on the field.

Heavy lift vessels using ballast to vary their draft have also been used to transport and install platforms offshore.

There are today a great number of offshore platforms installed to exploit oil and gas. When the oil and/or gas reservoirs are fully exploited the life span of the platform is usually over and it would in most cases be appropriate to remove the platform.

Some platforms are already removed, and removal of platforms will continue at an increasing pace the coming years.

The traditional way of removing platforms is to use large ocean going lifting cranes. The platform needs to be very thoroughly prepared prior to removal, and it must be cut into smaller parts since even the largest lifting crane vessels have limited lifting capacity. The same goes for the platform substructure (the jacket).

These operations are time consuming and costly, not only because the lifting cranes are large, expensive and need a large crew, but also because cutting a platform to smaller pieces in open sea is a very complicated task. It is also a risky operation.

The new technology, as described in this application, can be described as "single lift technology", and will reduce the costs considerably. It will also make the operations less risky than present alternatives. Within the category "single lift technology" there are three other concepts that the applicant is aware of at the moment:

"Offshore Shuttle" is a vessel planned built as a frame work structure. The vessel has a significant length and the lifting of for example a platform deck is based on crossbeams spanning across the structure.

"Master Marine" is developing a U-shaped semi submersible with deck-structure connecting the top of columns. Lifting is based on load transfer to the deck-structure.

"Versatruss" is a concept involving two separate barges each supporting its own lifting frame. By pulling the barges together after positioning the lifting frames beneath the lifting points on the platform deck, the lifting of the deck can be performed. This method has already been used to remove small platform decks in calm waters.

One object of the present invention is to accomplish a removal operation of a platform in a fast and cost effective manner without cutting either the deck or

the jacket into smaller parts. The removal operation shall be performed in a safe way where the safety of the operators is accomplished in the best possible way.

Another object of the present invention is that the lifting and handling equipment is as flexible as possible and that it can be easily adjusted to fit different sized platform decks. Further the equipment shall be able to lift and handle jackets of different sizes. In accordance with the invention the device is intended to be used together with a vessel, a so-called Multi Purpose Unit, MPU, which also can transport e.g. the platform deck to shore, and then transfer the deck to a barge or a pier suitable to the vessel.

Another object of the device is that it also shall be able to be used for installation of platforms, which basically is the reverse of removal. The device should furthermore be applicable for a range of purposes where a large lifting capacity is required.

The objects described above is achieved according to the invention by a device for positioning and lifting a marine structure, particularly a platform deck, with the use of a U-shaped ballastable lifting vessel, comprising at least two adjustable lifting frames, each able to incline towards the middle of the docking area, as comprising each of the lifting frames consists of an upper horizontal lifting beam, preferably situated on a level above the top of the lifting vessel, a near-support structure of which in its upper end is connected to the lifting beam and which in its lower end is hinged to the lifting vessel, and a near-horizontal part which in its first end is connected to the lifting beam and which in its second end is adjustably connected to the lifting vessel.

Preferred embodiments of the device are described in the claims 2 to 9.

The present invention is described below by means of embodiments and with references to the figures, where:

Fig. 1a shows a lifting vessel employed together with the device according to the present invention,

Fig. 1b shows the lifting vessel according to the present invention,

Fig. 2 shows the lifting vessel positioned around a jacket with a platform deck,

Fig. 3 shows a device according to the invention, a steel tubular rotation beam for lifting and rotating a jacket structure,

Fig. 4 shows a device for lifting and rotating a jacket structure for installation or removal,

Fig. 5a–5c show the vessel in connection with lifting and rotating a jacket structure where a special “cradle” is used,

Fig. 6 shows the lifting frames for lifting of preferably a platform deck,

Fig. 7 shows hydraulic jacks for operating the lifting frame, situated between the lifting vessel and the inclined legs of the lifting frame and the figure also shows the steel tubular beam for lifting and rotation/ removal of a jacket structure,

Fig. 8 shows a hydraulic lock bolt system for locking of the lifting frame in a certain position to a guide rail connected to the lifting vessel,

Fig. 9 shows one first alternative for a connection between the lifting frame and the jacket structure for removal of a platform deck,

Fig. 10a and 10b show a second alternative for a connection between the lifting frame and the jacket structure for removal of a platform deck,

Fig. 11a and 11b show a third alternative for a connection between the lifting frame and the jacket structure for removal of a platform deck,

Fig. 12, 13, 14 and 15 show step by step the operation sequence for removal of a platform deck with the help of the lifting vessel, and

Fig. 16, 17, 18, 19 and 20 show step by step the operation sequence for removal of a jacket structure with the help of the lifting vessel.

The device according to the invention will now be described with reference to the figures, especially fig. 1a and 2.

The device according to the present invention will now be described in connection with a lifting vessel protected through the Norwegian patent application no. 99 2759 held by the applicant of the present invention. The device according to the present invention is therefore described in connection with this lifting vessel, however it shall be noted that the device can be applied with other vessels and other equipment.

The lifting vessel 1 (MPU) is developed as a floating concrete hull with a U-shaped pontoon foundation 2 containing two longitudinal pontoons 2a, 2b and a transverse pontoon 2c, and with columns 5 through the water surface for hydrostatic stability and optimal behaviour in the sea. The columns 5 are not connected structurally at the top, which is made possible by a rigid and robust hull structure. A brim 3 along the lower edge of the pontoon foundation improves further the behaviour of the vessel in the sea. The vessel 1 is specially developed for operations offshore. The U-shape of the pontoon foundation 2a, 2b, 2c enables the vessel to position itself around a platform being installed or a platform being removed, be it the platform deck or a platform substructure. The lifting operation is performed according to Archimedes' principle by ballasting/deballasting the vessel 1. The lifting is mainly performed vertically, but the vessel 1 can be inclined in all directions to enable special lifting operations.

Positioning of the vessel 1 is considered done by tugs, but thrusters can be installed to make the vessel 1 self-propulsive. The vessel 1 is designed to operate in all oceans in all parts of the world. The vessel 1 is also designed to be transported on a heavy lift ship to ease transportation over large distances.

The vessel 1 is equipped with devices specially fitted for the operations the vessel 1 is intended for. Installation and removal of platforms (platform decks and platform substructures) for the oil and gas industry are examples of operations the vessel 1 is intended for.

Installation and removal of platform substructures are mentioned above as fields of operation for the vessel 1. The vessel 1 will now be described in relation to these operations, especially in connection with the handling of jackets. Steel jackets are widely used all over the world in the oil and gas industry as substructure for offshore oil and gas production units. There are also many other situations where a jacket structure is suitable as

a support structure. There will be a market for both installation and removal of jackets in the future. Below is described operations concerning removal of a jacket. For installation the operations will be performed in the reverse order.

According to the present invention lifting brackets 25 are attached to the jacket legs on one side of the jacket at a certain, pre-established height. A circular tubular rotation beam 22, according to the invention, is fixed to the top of the transverse pontoon 2c of the lifting vessel 1. The lifting vessel 1 is positioned around the jacket with the help of tugs and active use of a lifting frame 12 according to the present invention. This device will be described more thoroughly later in connection with lifting devices for positioning and lifting of a platform deck. The vessel 1 is hauled to a position where the transverse pontoon 2c of the vessel 1 is positioned close to the side of the jacket where the lifting brackets 25 are attached. The lifting vessel is ballasted to the desired draft and inclination of heel so that the tubular rotation beam 22 connects with the lifting brackets 25, see fig. 4, concurrent with the lower edge of the transverse pontoon 2c bear against the jacket legs with fenders between them. The lifting brackets 25 are locked to the tubular rotation beam 22 and by deballasting the lifting vessel 1 the jacket is lifted. When the jacket is lifted clear of the seabed or foundation the lower part is lifted to the surface using wires and winches (or buoyancy modules), thereby rotating the jacket about the tubular rotation beam 22, before transportation to a new destination.

The lifting brackets 25 are made of steel of robust design and will absorb all forces introduced by the lifting and rotating operations. The lifting brackets 25 are designed to lock onto the tubular rotation beam. The lifting brackets 25 easily rotate on the tubular rotation beam 22.

Pre-engineering is required with regards to the strength of the jacket structure before a lift can take place. The jacket legs must be reinforced if they cannot endure the loads introduced. The lifting brackets 25 can, if necessary, be shaped with two long tubular clamps with a plate between them, so that they can be mounted to the main leg and a diagonal bracing of the jacket. The brackets 25 will then absorb the forces from the tubular rotation beam 22 and distribute them to the tubular clamps, which in turn distribute the forces onward in axial direction of the legs and the braces of the jacket, and so avoiding the largest shear forces. This device must be dimensioned for each individual case.

For some jackets it may be difficult to dimension the support for the brackets 25. If this is a problem a "lifting cradle" according to the

invention can be used, see fig. 5. The lifting cradle is attached to the tubular rotation beam 22 and uses this as a rotation point as described above. The cradle 29 is a framework consisting of two triangular frames pointing outwards with a pointed end upwards, attached to the tubular rotation beam 22 on the pontoon. The triangular frames are connected with a tubular beam at the bottom of the perpendicular. The cradle 29 consists of tubes 2-3 meters in diameter that are filled with water when the cradle 29 is in its lowest position and will be emptied when the lift starts. The large dimensions secure structural strength and enough buoyancy to contribute to the lift.

The lifting vessel 1 is positioned as described above and the cradle 29 will embrace the jacket. Specially adjusted saddles are attached to the lower circular beam on the cradle 29, resting against the jacket legs. To avoid the jacket from sliding off the cradle 29 during the lift the jacket is connected to the tubular rotation beam 22 through brackets attached to the jacket legs. On the back of the lifting vessel 1 winches are mounted on each side of the "docking area" i.e. the inner area of the U-shaped pontoon foundation surrounded by the two longitudinal pontoons 2a, 2b and the transversal pontoon 2c. Winches onboard tugs can also be used. Through pulleys wires with a hook in one end is hooked to the lower corners of the cradle 29. The cradle 29 is now lifted upwards rotating about the tubular rotation beam 22 and the jacket is lifted out of the water for safe transportation to shore. An alternative method is to ballast/deballast the vessel 1 combined with the use of buoyancy modules attached to the jacket.

The present device for positioning and lifting of a platform deck will now be described with reference to the drawings. Platform decks exist in different sizes and to be able to handle them all, the lifting device must be large, strong and flexible/adjustable, with strict requirements to the shape for positioning around the substructure carrying the deck.

A lifting frame 12 fitted with a horizontal robust lifting beam 13 at the top is pin-connected 21 to the top of the longitudinal pontoons 2a, 2b on each side of the docking area, see fig. 1. The lifting frame 12 consists of a horizontal structure 18, preferably a truss structure, going from the horizontal lifting beam 13 to the upper anchorage point 10 on the lifting vessel 1. Furthermore the lifting frame 12 consists of a vertical support structure 16, preferably a truss-work, connected in its upper end to the lifting beam 13 and connected in its lower end to the lifting vessel through an anchorage point 11, preferably a pin connection 21. The lifting frames 12, 12 in the upright position stands taller than the top of

the lifting vessel 1, such that the lifting beams 13, 13 are always above the hull of the lifting vessel 1. The lifting frames 12, 12 can, with the use of the hydraulic cylinders 20, 20 connected to the lifting vessel 1 and the lifting frames 12, 12, see fig. 1a and 7, be inclined towards the middle of the docking area to position the lifting beams 13, 13 under the lifting points on the platform deck. The two lifting frames 12, 12 can be run independently. The lifting frames 12, 12 are locked in the right position before the lift starts, with hydraulic bolts 9 through holes 8 in guide rails 7 connected to each of the four columns 5 on the hull of the lifting vessel 1, see fig. 1a and 8. This ensures fixation in all directions included sea fastening during transport. Plane outer walls 6 tangentially fixed to the columns 5 are supporting the guide rails 7. The plane walls 6 are furthermore perpendicular to the direction of the connection line between two columns 5,5.

The connection between the lifting beam 13 and the deck can be carried out in different ways. Below is described three ways that ensures adequate flexibility to absorb shocks during a lift off:

- i) The lifting beam 13 can be equipped with a shock absorbing cover 14 while also placing shock absorbing cushions underneath the deck. If it is not possible to lift directly underneath the deck the upper part of the jacket can be fitted with brackets 26 with shock cushions so that the lifting beam 13 can get a proper hold, see fig. 9. Prior to lift off the jacket will be cut right below the brackets 26.
- ii) Hydraulic cylinders 30 are placed on top of the lifting beam 13 in well calculated positions to get direct contact with the lifting points on the deck structure (or brackets 26 on the upper part of the jacket). Shock absorbing cushions are placed between the deck structure and the hydraulic cylinders 30 to obtain maximum damping, see fig. 10.
- iii) “Shock cells” consisting of cylinders 35 filled with sand or another shock absorbing material is placed on top of the lifting beams 13 in well calculated positions. Conical tube stubs 37 are placed in corresponding positions on the deck structure. The conical tube stubs 37 absorb shocks when they penetrate the sand-filled cylinders 35, see fig. 11a. An alternative is that both the tube stubs 37 and the shock cells 35 are mounted on the deck structure, see fig. 11b.

The MPU 1 is positioned around a jacket structure with deck and is made ready for lift off and removal of the deck. The lifting frames 12, 12 on each side of the docking area is actively used for positioning by inclining them against the jacket with the help of hydraulically controlled arms 20, see fig. 2. Additionally the positioning is done by tugs. The lifting frames 12, 12 are pulled back into lifting position when the MPU 1 is in the right position, as described above. The MPU 1 is then deballasted slowly until the lifting beams 13 are touching the lifting points. Compensation for the vertical motions of the MPU 1 is partly done by flexible shock cushions mounted on the lifting beams and lifting points, and partly by the use of a flushing system that ensures a quick load transfer. When the deck has a safe clearance to the jacket the MPU is pulled away from the jacket before ballasted down to transport draft.

The flushing system consists of flushing (ballast) tanks 4 above the waterline with large area quick release trapdoors that enable the water to flush out. Trapdoors on different levels enable multiphase flushing, i.e. flushing in several steps.

This example describes the operations for removal of a platform deck. The different operations are illustrated in a sequence of figures; fig. 12-15:

- i) Positioning around a jacket with a deck.
With the help of tugs the MPU 1 is positioned around the jacket. The lifting frames 12, 12 are in upright position with good clearance to the jacket. The draft of the vessel 1 ensures good clearance to the deck, see fig. 12.
- ii) Using the lifting frames 12, 12 to fine adjust the position around the jacket.
When the MPU 1 is approaching the correct position the lifting frames 12, 12 are inclined against the jacket to dampen the horizontal motions of the MPU 1 and also to fine-adjust the position. This is done by active use of hydraulics, see fig. 13.
- iii) Deballasting the MPU 1, ready for lift-off.
The MPU 1 is deballasted while the lifting frames 12, 12 glide along the jacket structure to dampen the horizontal motions. The deballasting proceeds until the lifting frames 12, 12 are right under the lifting points on the deck. The lifting frames 12, 12 are then locked into position and MPU 1 is ready for lifting off the platform deck, see fig. 14.
- iv) Lift-off of the deck

When the MPU 1 is ready to lift off the deck, water in the flushing tanks 4 are let out quickly by opening the quick release trapdoors in the columns 5 thereby achieving a rapid lift. The deck is prepared in advance by cutting the connections between the deck and the jacket, see fig. 15.

v) Ready for transportation to shore

After lift-off the MPU 1 is pulled away from the remaining jacket. The MPU 1 is deballasted down to transportation draft when it is clear from the jacket. If necessary additional sea fastening to the locking of the lifting frames 12, 12 are added and the transportation to shore can start. It is also possible to transfer the deck to a barge for transportation to shore so that the MPU 1 is immediately available for new operations (e.g. removal of the jacket).

This example describes the operations for removal of a jacket structure. The different operations are illustrated in a sequence of figures; fig. 16-20:

vi) Positioning around a jacket (without a deck).

With help from tugs the MPU 1 is positioned around the jacket. The lifting frames 12, 12 are in upright position with good clearance to the jacket, see fig. 16.

vii) Using the lifting frames 12, 12 to fine adjust the position around the jacket.

When the MPU 1 is approaching the correct position the lifting frames 12, 12 are inclined against the jacket to dampen the horizontal motions of the MPU 1 and also to fine-adjust the position. This is done by active use of hydraulics, see fig. 17.

viii) The MPU is inclined and deballasted, ready for lift-off

The MPU 1 is inclined and deballasted until the tubular rotation beam 22, situated on top of the transversal pontoon 2c, gets a hold of the brackets 25 pre-installed on the jacket, see fig. 18.

ix) Lift-off

When the MPU 1 is ready to lift off the jacket, water in the flushing tanks 4 are let out quickly by opening the quick release trapdoors in the columns 5 thereby achieving a rapid lift. The jacket is prepared in advance by cutting the jacket legs, piles, risers etc., see fig. 19.

x) Tilting of the jacket, ready for transportation

After lift-off, the jacket is rotated to a near-horizontal position with the use of winches and wires mounted on the aft of the MPU 1 or winches and wires onboard tugs, see fig. 20. An alternative method is to attach buoyancy modules to the jacket. After sea fastening the

PCT/NO00/00198
09-07-2001

transportation to shore can start. An alternative is to transfer the jacket to a barge for transportation to shore so that the MPU 1 is immediately available for new operations.

卷之三

AMENDED SHEET

PATENT CLAIMS

1. A device for positioning and lifting a marine structure, particularly a platform deck, with the use of a U-shaped ballastable lifting vessel (1), characterised by comprising at least two adjustable lifting frames (12,12), each able to incline towards the middle of the docking area, as each of the lifting frames (12) consists of an upper horizontal lifting beam (13), preferably situated on a level above the top of the lifting vessel (1), a near-vertical support structure (16) which in its upper end is connected to the lifting beam (13) and which in its lower end is hinged (21) to the lifting vessel (1), and a near-horizontal part (18) which in its first end is connected to the lifting beam (13) and which in its second end is adjustably connected to the lifting vessel (1).
2. A device according to claim 1, characterised in that the upper horizontal lifting beam (13) is covered with an external shock absorbing cover (14).
3. A device according to claim 2, characterised in that the shock absorbing cover (14) is made of rubber.
4. A device according to claim 1, characterised in that the lifting beam (13) is provided with hydraulic cylinders (30) in pre-defined lifting point positions.
5. A device according to claim 1, characterised in that the lifting beam (13) is provided with sand-filled cylinders (35) in pre-defined lifting point positions as the sand-filled cylinders (35) co-operate with the corresponding conical tubular stubs (37) on the platform deck.

6. A device according to any of the preceding claims,
characterised in that the near-vertical part (16) is a truss
structure.
7. A device according to any of the preceding claims,
characterised in that the near-horizontal part (18) is a truss
structure.
8. A device according to any of the preceding claims,
characterised in that the adjustable connection of the near-
horizontal part (18) of the lifting vessel (1) is in the form of a hydrauli-
cally operated bolt (9) inserted into a corresponding hole (8) in a
guiding rail (7) on the lifting vessel (1).
9. A device according to any of the preceding claims,
characterised in that the near-vertical part (16) in an area
above the hinge point (21) is equipped with adjustable hydraulic arms
(20) connected to the lifting vessel (1).

10/009100

PCT/N000/00198

WO 00/75010

1/13

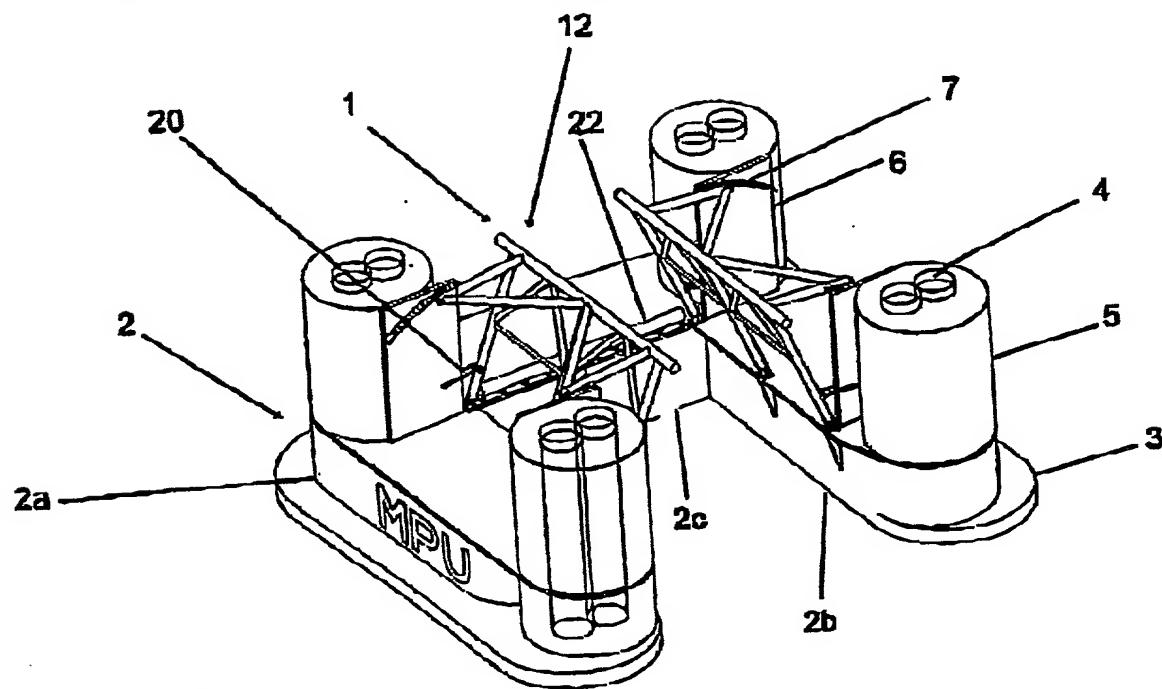


Fig. 1a

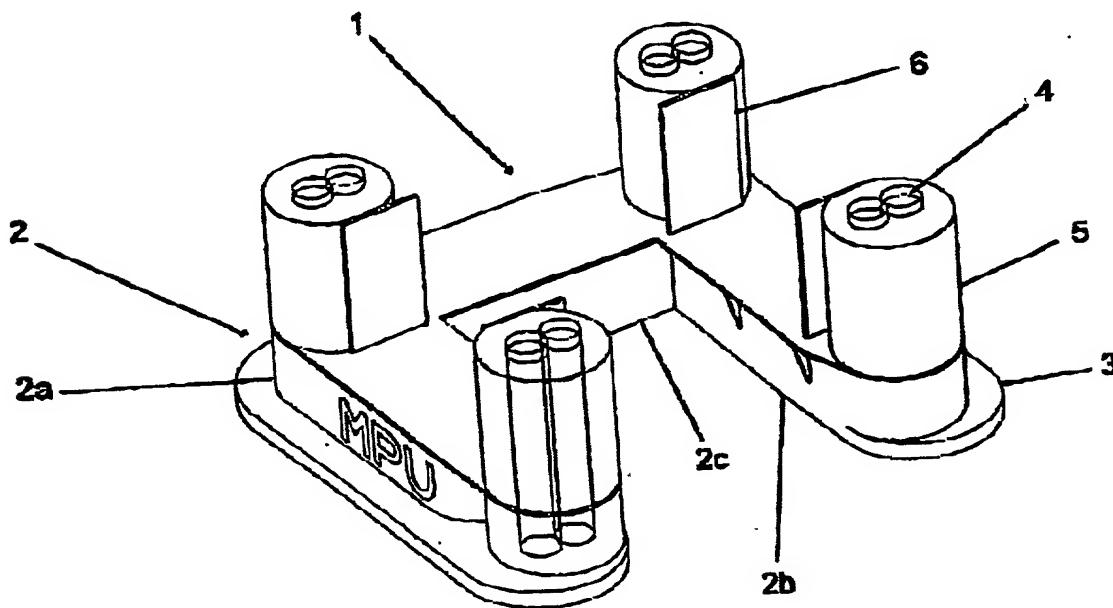


Fig. 1b

2/13

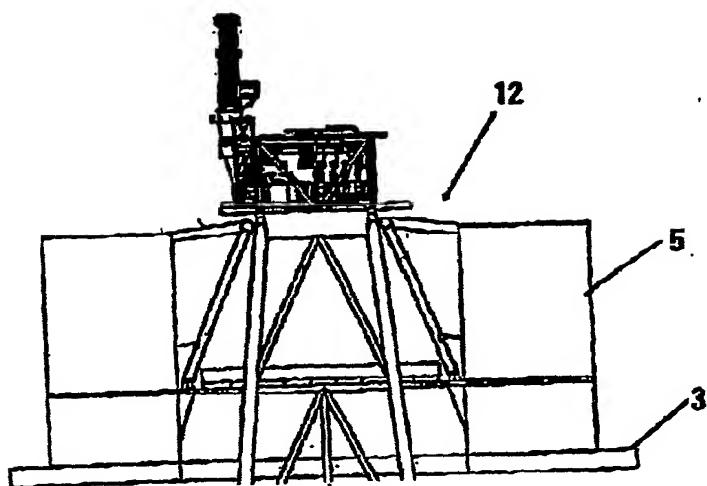


Fig. 2

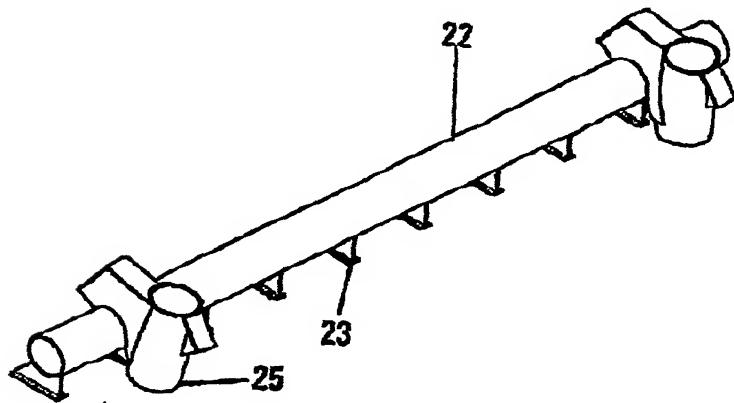


Fig. 3

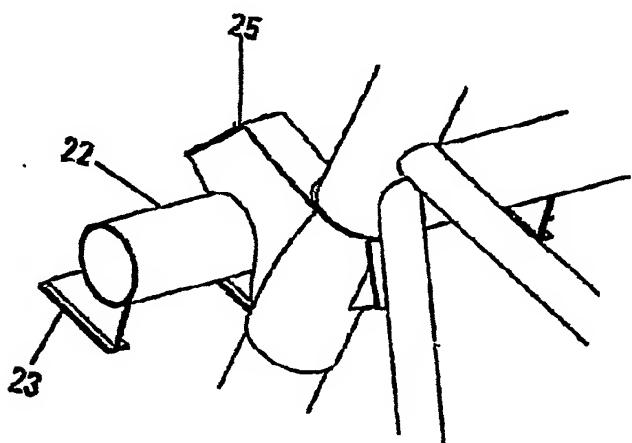


Fig. 4

10/009100
PC/NO9/009100

WO 0075010

3/13

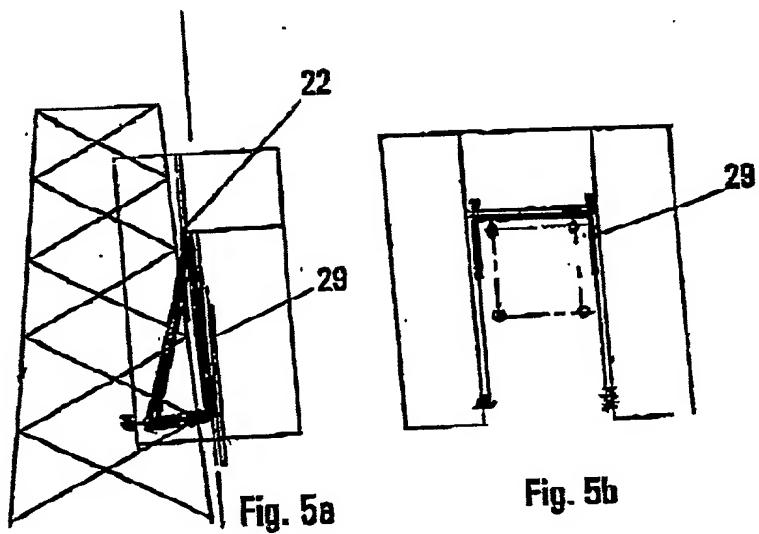


Fig. 5a

Fig. 5b

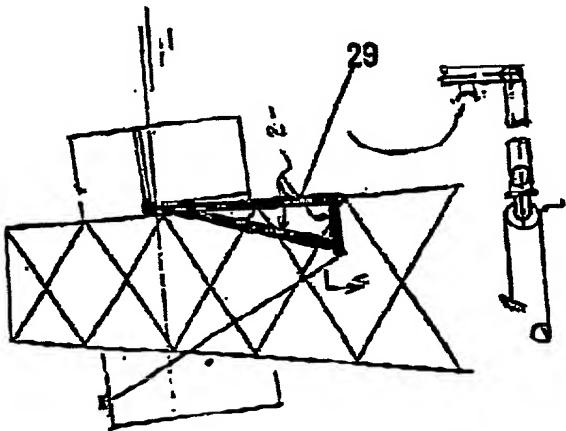


Fig. 5c

30. NOV. 2001 15:16

DRYN & AARFLOT AS 147 22003131

NO. 0103 P. 2

10/009100

PCT/NODD/00198

WO 00/75010

4/13

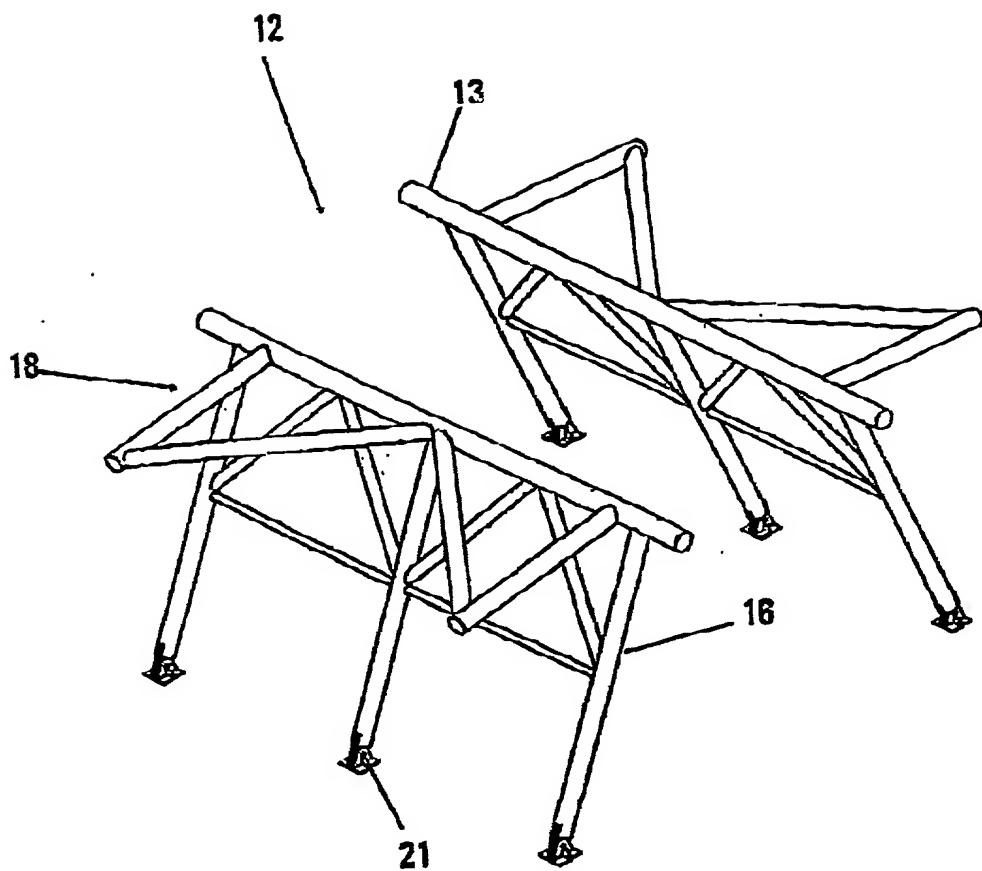


Fig. 6

WO 00/75010

5/13

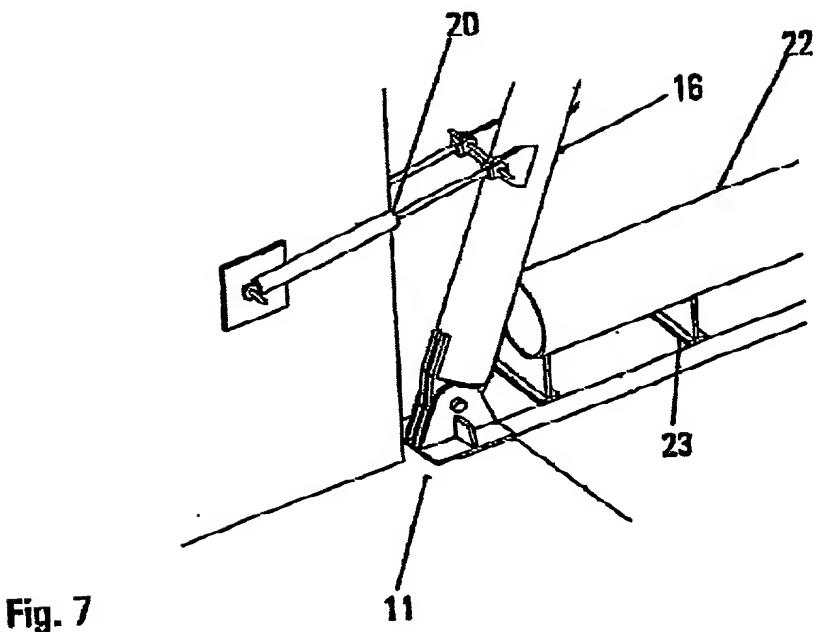


Fig. 7

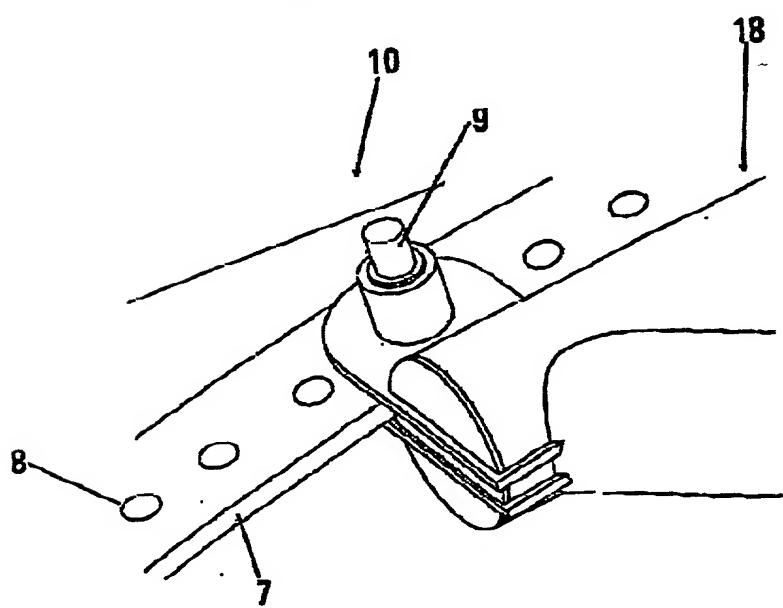


Fig. 8

30. NOV. 2001 15:16

DRYV & AARFLOT AS 147 22003101

NO. 5153 T. 23

10/009100

PCT/NO00/00198

WO 00/75010

6/13

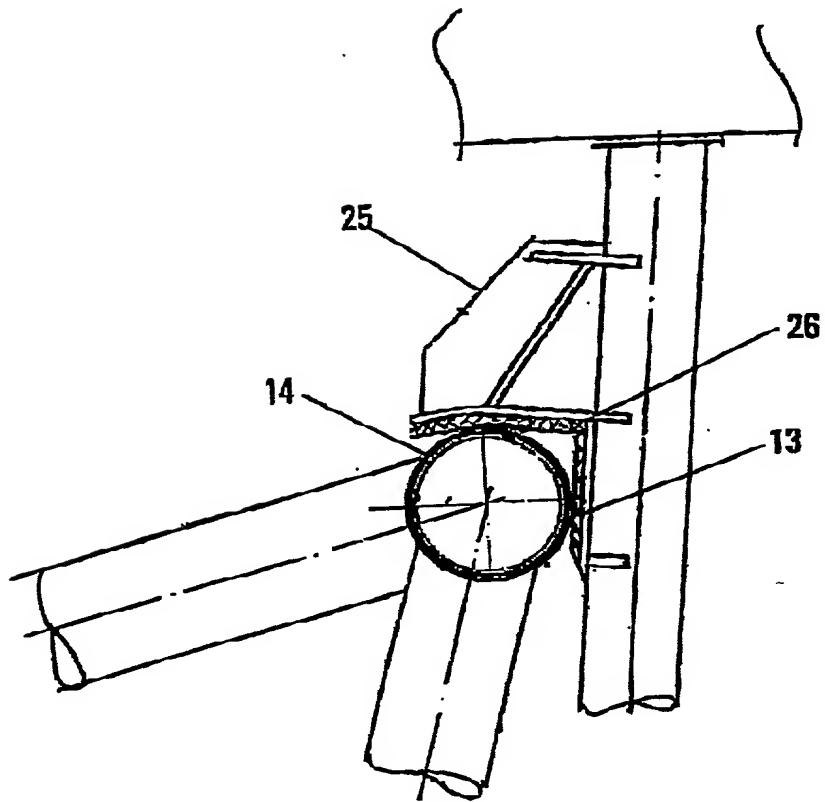


Fig. 9

WO 00/75010

7/13

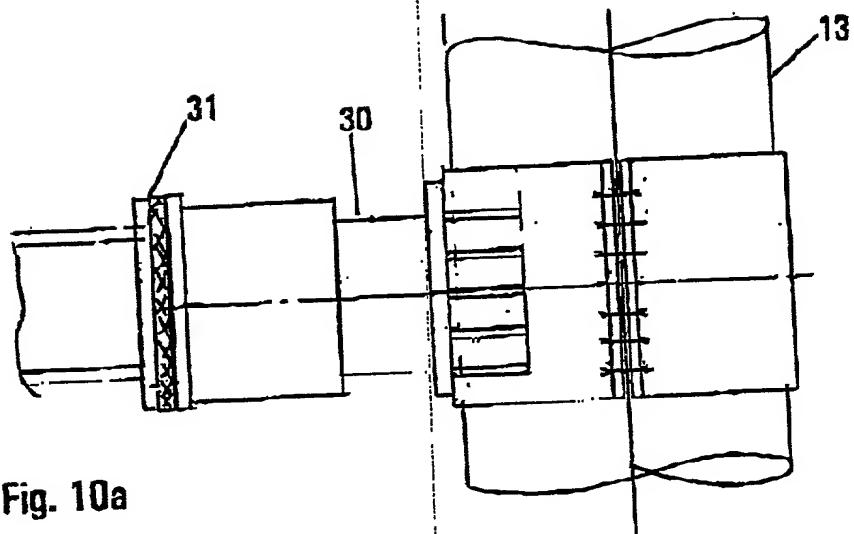


Fig. 10a

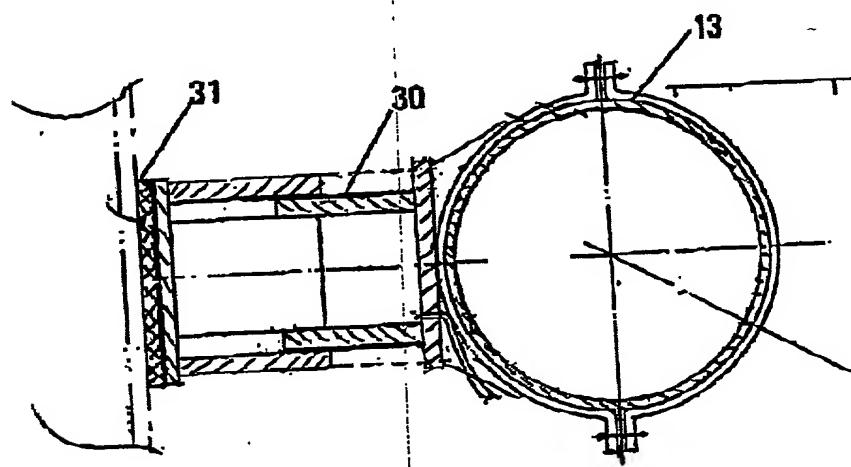


Fig. 10b

WO 00/75010

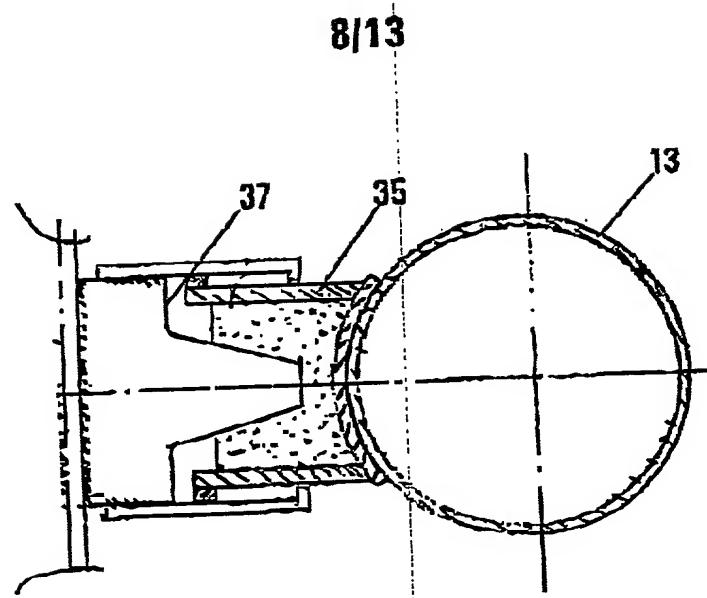


Fig. 11a

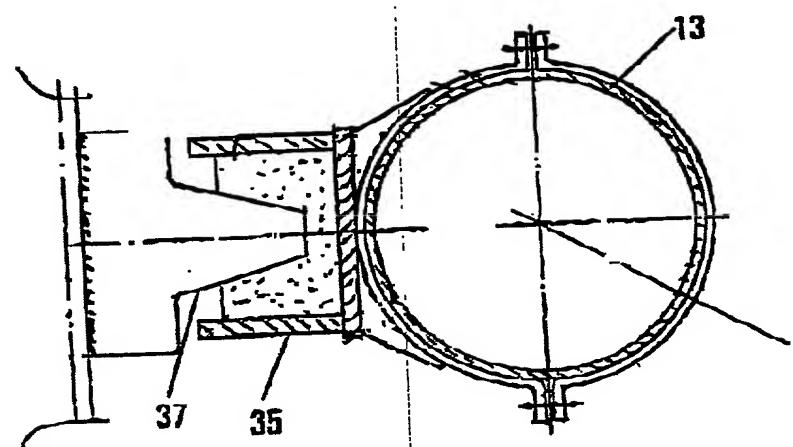


Fig. 11b

WO 00/75010

9/13

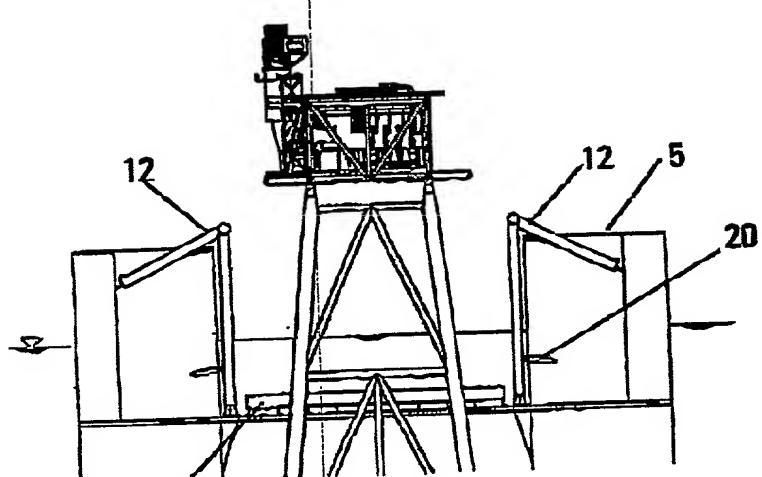


Fig. 12

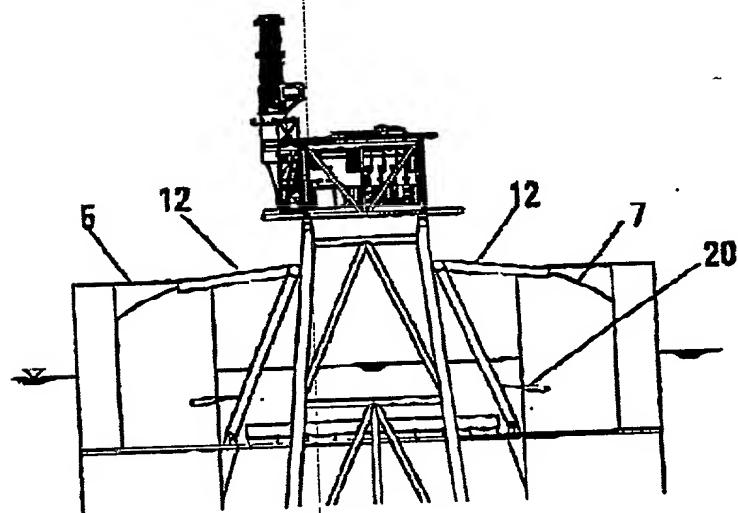


Fig. 13

WO 00/75010

10/13

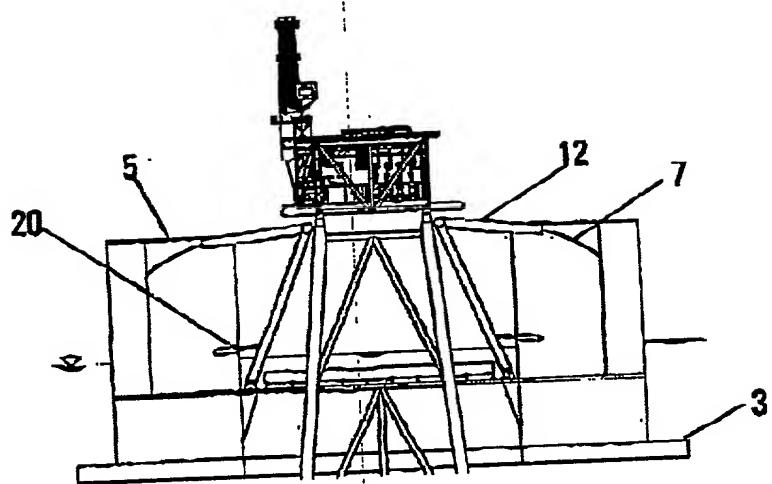


Fig. 14

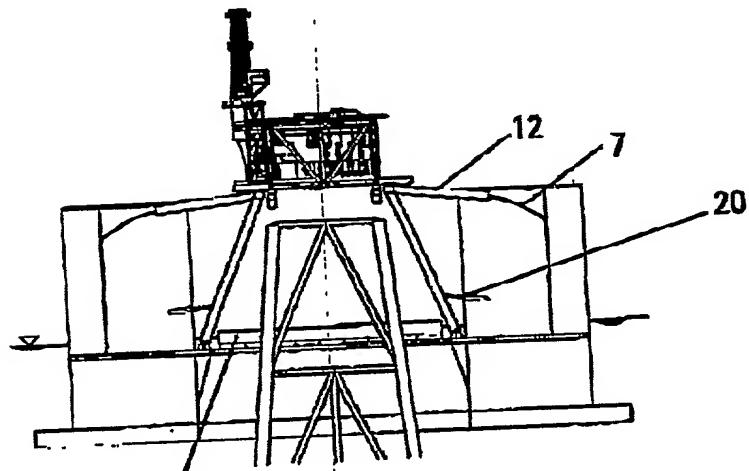


Fig. 15

WO 00/75010

PCT/N000/00198

11/13

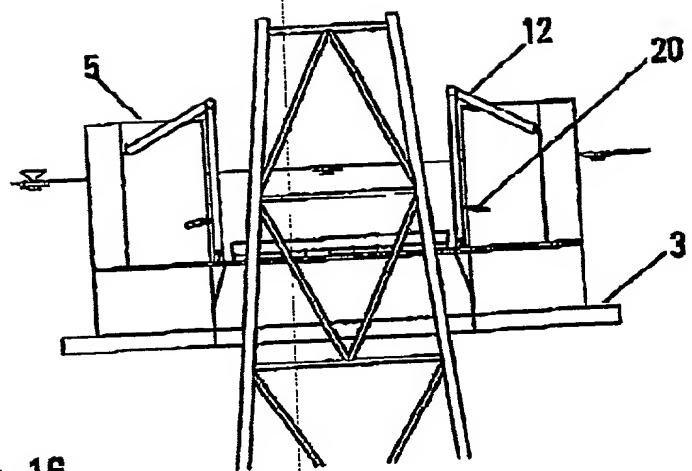


Fig. 16

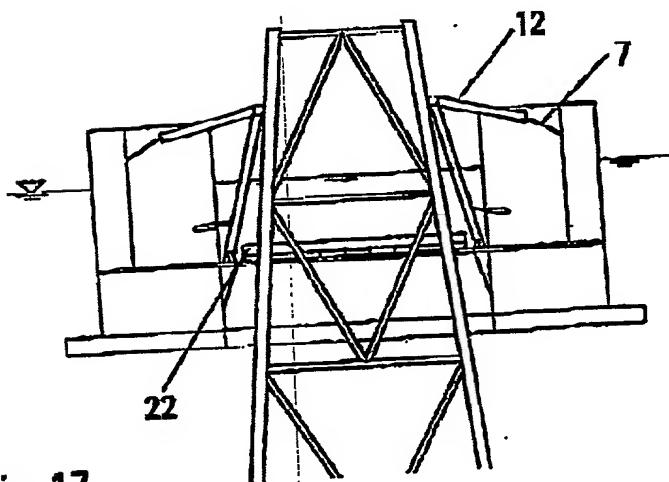


Fig. 17

12/13

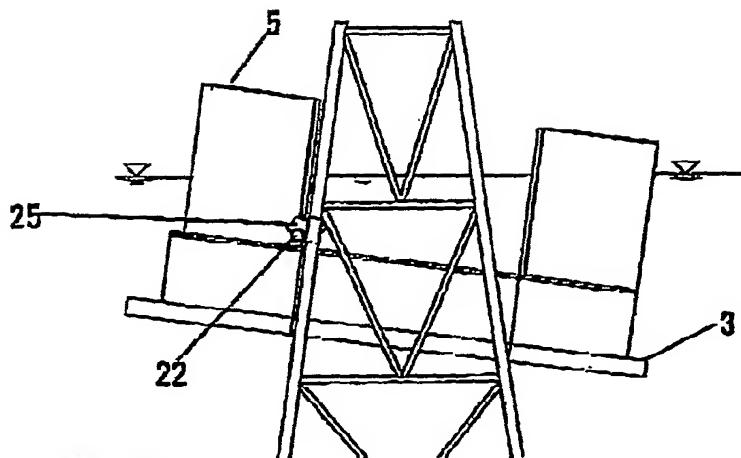


Fig. 18

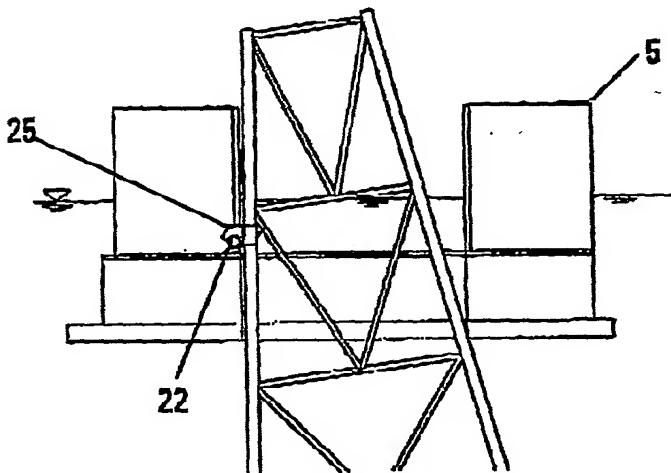


Fig. 19

30. NOV. 2001 15:16

DRYV & AARFLOT AS 147 22003101

NO. 0103 P. 00

WO 0075010

10/009100
PCT/N00000198

13/13

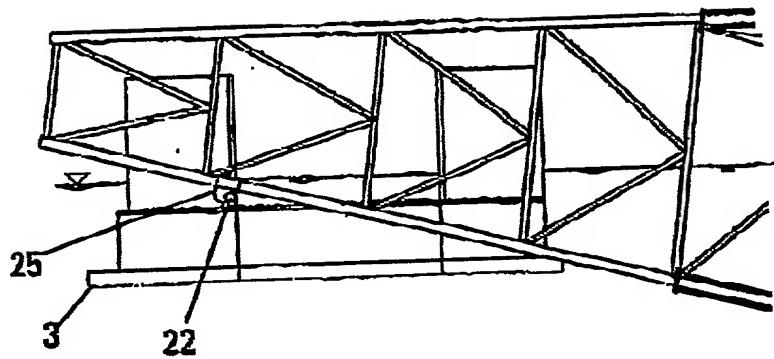


Fig. 20

Practitioner's Docket No. U 013752-2

PATENT

Optional Customer No. Bar Code



00140

PATENT TRADEMARK OFFICE

COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL,
CONTINUATION, OR C-I-P)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is of the following type:

(check one applicable item below)

- original.
 design.

NOTE: *With the exception of a supplemental oath or declaration submitted in a reissue, a supplemental oath or declaration is not treated as an amendment under 37 CFR 1.312 (Amendments after allowance). M.P.E.P. Section 714.16, 7th Ed.*

- supplemental.

NOTE: *If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.*

- national stage of PCT.

NOTE: *If one of the following 3 items apply, then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR C-I-P.*

NOTE: *See 37 C.F.R. Section 1.63(d) (continued prosecution application) for use of a prior nonprovisional application declaration in the continuation or divisional application being filed on behalf of the same or fewer of the inventors named in the prior application.*

- divisional.
 continuation.

NOTE: *Where an application discloses and claims subject matter not disclosed in the prior application, or a continuation or divisional application names an inventor not named in the prior application, a continuation-in-part application must be filed under 37 C.F.R. Section 1.53(b) (application filing requirements-nonprovisional application).*

- continuation-in-part (C-I-P).

INVENTORSHIP IDENTIFICATION

WARNING: *If the inventors are each not the inventors of all the claims, an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.*

My residence, post office address and citizenship are as stated below, next to my name. I believe that I am the original, first and sole inventor (*if only one name is listed below*) or an original, first and joint inventor (*if plural names are listed below*) of the subject matter that is claimed, and for which a patent is sought on the invention entitled:

TITLE OF INVENTION

DEVICE FOR POSITIONING AND LIFTING A MARINE STRUCTURE, PARTICULARLY A
PLATFORM DECK

SPECIFICATION IDENTIFICATION

The specification of which:

(complete (a), (b), or (c))

(a) [] is attached hereto.

NOTE: *"The following combinations of information supplied in an oath or declaration filed on the application filing date with a specification are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 C.F.R. Section 1.63.*

"(1) name of inventor(s), and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration on filing;

"(2) name of inventor(s), and attorney docket number which was on the specification as filed; or

"(3) name of inventor(s), and title which was on the specification as filed."

Notice of July 13, 1995 (1177 O.G. 60).

(b) [] was filed on _____, [] as Application No. _____
[] and was amended on _____ (if applicable).

NOTE: *Amendments filed after the original papers are deposited with the PTO that contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 C.F.R. Section 1.67.*

NOTE: *"The following combinations of information supplied in an oath or declaration filed after the filing date are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 C.F.R. Section 1.63:*

(A) application number (consisting of the series code and the serial number, e.g., 08/123,456);

(B) serial number and filing date;

(C) attorney docket number which was on the specification as filed;

(D) title which was on the specification as filed and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration; or

(E) title which was on the specification as filed and accompanied by a cover letter accurately identifying the application for which it was intended by either the application number (consisting of the series code and the serial number, e.g., 08/123,456), or serial number and filing date. Absent any statement(s) to the contrary, it will be presumed that the application filed in the PTO is the application which the inventor(s) executed by signing the oath or declaration.

M.P.E.P. Section 601.01(a), 7th ed.

- (c) was described and claimed in PCT International Application No. PCT/NO00/00198 filed on 7 June 2000 and as amended under PCT Article 19 on _____ (if any).

SUPPLEMENTAL DECLARATION (37 C.F.R. Section 1.67(b))

(complete the following where a supplemental declaration is being submitted)

- I hereby declare that the subject matter of the
 attached amendment
 amendment filed on _____.

was part of my/our invention and was invented before the filing date of the original application, above identified, for such invention.

ACKNOWLEDGMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in 37, Code of Federal Regulations, Section 1.56,

(also check the following items, if desired)

- and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, and
 in compliance with this duty, there is attached an information disclosure statement, in accordance with 37 C.F.R. Section 1.98.

PRIORITY CLAIM (35 U.S.C. Section 119(a)-(d))

NOTE: "The claim to priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by Section 1.63. The claim for priority and the certified copy of the foreign application specified in 35 U.S.C. Section 119(b) must be filed in the case of an interference (Section 1.630), when necessary to overcome the date of a reference relied upon by the examiner, when specifically required by the examiner, and in all other situations, before the patent is granted. If the claim for priority or the certified copy of the foreign application is filed after the date the issue fee is paid, it must be accompanied by a petition requesting entry and by the fee set forth in Section 1.17(i). If the certified copy is not in the English language, a translation need not be filed except in the case of interference; or when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner, in which event an English language translation must be filed together with a statement that the translation of the certified copy is accurate." 37 C.F.R. Section 1.55(a).

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

- (d) [] no such applications have been filed.
(e) [X] such applications have been filed as follows.

NOTE: Where item (c) is entered above and the International Application which designated the U.S. itself claimed priority check item (e), enter the details below and make the priority claim.

**PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION
AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. SECTION 119(a)-(d)**

COUNTRY (OR INDICATE IF PCT)	APPLICATION NUMBER	DATE OF FILING DAY, MONTH, YEAR	PRIORITY CLAIMED UNDER 35 USC 119
NO	19992761	7 June 1999	[X] YES []NO
			[]YES []NO
			[]YES []NO
			[]YES []NO
			[]YES []NO

**CLAIM FOR BENEFIT OF PRIOR U.S. PROVISIONAL APPLICATION(S)
(35 U.S.C. Section 119(e))**

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below:

PROVISIONAL APPLICATION NUMBER

FILING DATE

**CLAIM FOR BENEFIT OF EARLIER U.S./PCT APPLICATION(S)
UNDER 35 U.S.C. SECTION 120**

- [] The claim for the benefit of any such applications are set forth in the attached ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART (C-I-P) APPLICATION.

**ALL FOREIGN APPLICATION(S), IF ANY, FILED MORE THAN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION**

NOTE: If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR C-I-P APPLICATION for benefit of the prior U.S. or PCT application(s) under 35 U.S.C. Section 120.

POWER OF ATTORNEY

I hereby appoint the following practitioner(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

(list name and registration number)

JOSEPH H. HANDELMAN, 26179
JOHN RICHARDS, 31053
RICHARD J. STREIT, 25765
PETER D. GALLOWAY, 27885
RICHARD P. BERG, 28145

JULIAN H. COHEN, 20302
WILLIAM R. EVANS, 25858
JANET I. CORD, 33778
CLIFFORD J. MASS, 30086
CYNTHIA R. MILLER, 34678

(Check the following item, if applicable)

- I hereby appoint the practitioner(s) associated with the Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.
- Attached, as part of this declaration and power of attorney, is the authorization of the above-named practitioner(s) to accept and follow instructions from my representative(s).

NOTE: "Special care should be taken in continuation or divisional applications to ensure that any change of correspondence address in a prior application is reflected in the continuation or divisional application. For example, where a copy of the oath or declaration from the prior application is submitted for a continuation or divisional application filed under 37 CFR 1.53(b) and the copy of the oath or declaration from the prior application designates an old correspondence address, the Office may not recognize, in the continuation or divisional application, the change of correspondence address made during the prosecution of the prior application. Applicant is required to identify the change of correspondence address in the continuation or divisional application to ensure that communications from the Office are mailed to the current correspondence address. 37 CFR 1.63(d)(4)." Section 601.03, M.P.E.P., 7th Ed

SEND CORRESPONDENCE TO

**Ladas & Parry
26 West 61st Street
New York, N.Y. 10023**

DIRECT TELEPHONE CALLS TO:

(Name and telephone number)

**William R. Evans
(212) 708-1930**

(complete the following if applicable)

Since this filing is a [] continuation [] divisional there is attached hereto a Change of Correspondence Address so that there will be no question as to where the PTO should direct all correspondence.

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE(S)

NOTE: Carefully indicate the family (or last) name, as it should appear on the filing receipt and all other document.

NOTE: Each inventor must be identified by full name, including the family name, and at least one given name without abbreviation together with any other given name or initial, and by his/her residence, post office address and country of citizenship. 37 C.F.R. Section 1.63(a)(3).

NOTE: Inventors may execute separate declarations/oaths provided each declaration/oath sets forth all the inventors. Section 1.63(a)(3) requires that a declaration/oath, inter alia, identify each inventor and prohibits the execution of separate declarations/oaths which each sets forth only the name of the executing inventor. 62 Fed. Reg. 53,131, 53,142, October 10, 1997,

Full name of sole or first inventor

John (Given Name) M SCHIA Family (Or Last Name)

Inventor's signature (X) M. Schia

Date (X) 25.02.02 Country of Citizenship NORWAY

Residence Stromstangvn 36, N-1367 Snaroya, Norway NDX

Post Office Address Same as above

Full name of second joint inventor, if any

Tor (Given Name) Ole (Middle Initial or Name) OLSEN Family (Or Last Name)

Inventor's signature (X) Tor Ole Olsen

Date (X) 25.02.02 Country of Citizenship Norway

Residence Dicksvei 10, N-1325 Lysaker, Norway NDX

Post Office Address Same as above

Full name of third joint inventor, if any

Kolbjørn (Given Name) K HOYLAND Family (Or Last Name)

Inventor's signature (X) Kolbjørn

Date (X) 28.02.2002 Country of Citizenship Norway

Residence Fasansvingen 29, N-1349 Rykkin, Norway NDX

Post Office Address Same as above

Practitioner's Docket No. U 013752-2

**ADDED PAGE TO COMBINED DECLARATION AND POWER OF
ATTORNEY FOR SIGNATURE BY FOURTH AND SUBSEQUENT INVENTORS**

4,00 Full name of fourth joint inventor, if any

Kare
(Given Name)

O.
(Middle Initial or Name)

HAEREID
Family (Or Last Name)

Inventor's signature (X) *Kare O Haereid*

Date (X) 26.02.02 Country of Citizenship Norway

Residence Bestumvn. 75a, N-0283 Oslo, Norway NOX

Post Office Address Same as above

5,00 Full name of fifth joint inventor, if any

Jorn
(Given Name)

Bastholm
(Middle Initial or Name)

HANSEN
Family (Or Last Name)

Inventor's signature (X) *Jorn B Hansen*

Date (X) 250202 Country of Citizenship Norway

Residence Kalkfjellet 45, N-1387 Asker, Norway NOX

Post Office Address Same as above

6,00 Full name of sixth joint inventor, if any

Trond
(Given Name)

(Middle Initial or Name)

LANDBÖ
Family (Or Last Name)

Inventor's signature (X) *Trond Landbo*

Date (X) 26.02.02 Country of Citizenship Norway

Residence Vestlivn. 20b, N-1344 Haslum, Norway NOX

Post Office Address Same as above

*(check proper box(es) for any of the following added page(s)
that form a part of this declaration)*

- [X] **Signature** for fourth and subsequent joint inventors. *Number of pages added* 1

* * *

- [] **Signature** by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. *Number of pages added* _____

* * *

- [] **Signature** for inventor who refuses to sign or cannot be reached by person authorized under 37 C.F.R. Section 1.47. *Number of pages added* _____

* * *

- [] Added page for **signature** by one joint inventor on behalf of deceased inventor(s) where legal representative cannot be appointed in time. (37 C.F.R. Section 1.47)

* * *

- [] Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (C-I-P) application.

[] *Number of pages added* _____

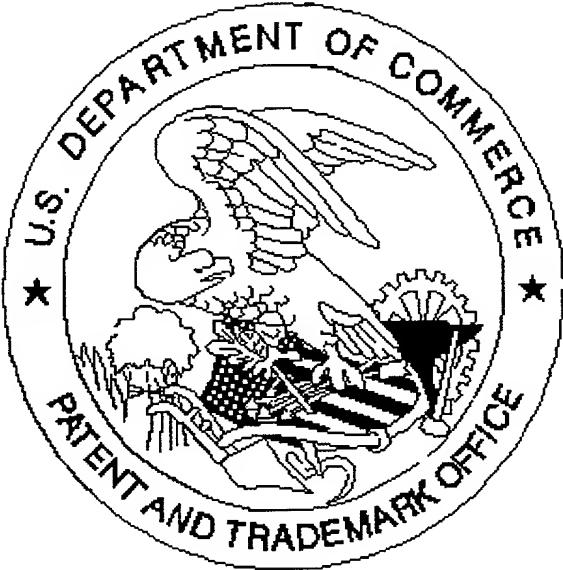
* * *

- [] Authorization of practitioner(s) to accept and follow instructions from representative.

*(If no further pages form a part of this Declaration,
then end this Declaration with this page and check the following item)*

- [] This declaration ends with this page.

United States Patent & Trademark Office
Office of Initial Patent Examination -- Scanning Division



Application deficiencies found during scanning:

Page(s) _____ of _____ were not present
for scanning. (Document title)

Page(s) _____ of _____ were not present
for scanning. (Document title)

Scanned copy is best available. There are line in drawings.